

REMARKS/ARGUMENTS

Favorable reconsideration of this Application, as presently amended and in light of the following discussion, is respectfully requested.

This Amendment is in response to the Office Action mailed on March 25, 2005. Claims 1-20 are pending in the Application and Claims 1-10 stand rejected. Claims 1-10 are amended and new Claims 11-20 are added by the present Amendment.

In the outstanding Office Action, the drawings were objected to; Claims 1-10 were rejected under 35 U.S.C. § 112, second paragraph; Claims 1-6 and 9-10 were rejected under 35 U.S.C. § 102(b) as being anticipated by Wagle (U.S. Patent No. 3, 554,667); and Claims 7 and 8 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Wagle in view of Palfreyman et al. (U.S. Patent No. 3,532,438, hereinafter "Palfreyman").

As to the objection to Applicants' drawings, reconsideration is respectfully requested in view of the non-limiting illustration in FIGS. 5A and 5B of a downstream end 124b, a series of axial protrusions 124i, a stiffener formed by the composite assembly 140 in the form of a sleeve mounted on one of the protrusions 124i and the discussion of those features on page 9, line 8 – page 10, line 5 of Applicants' specification.

As to rejection of the claims under 35 U.S.C. §112, second paragraph, Applicants note with appreciation the time taken by the Examiner to identify specific areas needing revisions. Applicants submit that the instant claim amendments have overcome these rejections under 35 U.S.C. §112 and respectfully request their withdrawal. It is believed that all pending claims are definite and no further rejection on that basis is anticipated. If, however, the Examiner disagrees, the Examiner is invited to telephone the undersigned who will be happy to work with the Examiner in a joint effort to derive mutually acceptable language.

As to the anticipation rejection, Applicants respectfully submit that presently amended Claim 1 is not anticipated by Wagle because each and every element as set forth in that claim is not found, either expressly or inherently described, in the cited reference. In an

anticipation rejection, the identical invention must be shown in as complete detail as is contained in the claim.¹

According to a feature of the invention as set forth in Claim 1, a *single-block* drum of a rotor configured to support blades is recited, comprising, among other features, *a stiffener comprising a composite assembly mounted only on the downstream end of the drum*, the composite assembly comprising fibers and a polymer matrix.

As disclosed in the Specification, the manufacturing of conventional drums is a wasteful process particularly because of the shape of stiffeners disposed on the downstream portions of the drum, requiring the forging of relatively thick blocks of raw materials that have to be machined down to the final product, thereby raising the cost of the final product.² The single-block drum of the instant invention comprising the above-noted stiffener with the composite assembly eliminates or alleviates this problem. Claim 1 has been amended to more clearly recite such a drum.

Wagle relates to a rotor of a turboshaft engine comprising a drum 9 made up of a stack of discs 10 ending with two end bells 11 and 13 (see, for example, Figure 1 of Wagle). The three flanges 23, 24, 25 (illustrated in Figure 4) form two annular spaces 27, in which two reinforcement rings 29 and 30 are placed. Each disc 10 also comprises two blade lock rings 37 and 38 placed at the rearward and forward ends of the blade 18 (see, for example, Figure 2 and Wagle, column 2 line 47 – column 3, line 3). The rings 37 and 38 consist of a metal part (column 2, lines 51 and 52) and respectively one (42) and two (44 and 47) composite windings of fibers (column 2, line 55 and column 2, lines 66 and 72). In both cases (reinforcement rings 29 and 30 and blade lock rings 38 and 37), fiber windings form an annular element around the axis of rotation of the drum.

¹ See MPEP 2131: "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference," (Citations omitted) (emphasis added). See also MPEP 2143.03: "All words in a claim must be considered in judging the patentability of that claim against the prior art."

² See, for example, Specification, page 2, lines 21-36.

However, contrary to the invention recited in presently amended Claim 1, the rings 29, 30, 37 and 38 of Wagle are not positioned at the downstream end of the rotor receiving the fixed blades, but along the rotor, facing the mobile blades 18. Moreover, the single-block drum according to the present invention is formed by a single forged part, whereas Wagle relates to a stack of discs each of which supports only one row of blades. As previously indicated, Claim 1 has been amended to more clearly highlight these and other novel and advantageous features. In addition, Wagle does not disclose stiffeners in the shape of individual sleeves disposed in several axial protuberances distributed radially as recited in Claim 4.

Applicants respectfully submit that Claim 1 is not anticipated by Wagle. As just explained, this cited prior art reference does not disclose a single-block drum comprising a stiffener in the form of a composite assembly comprising fibers and a polymer matrix mounted only on the downstream end of the drum. In addition, Claims 2-6, 9, and 10 should be allowed, among other reasons, as depending either directly or indirectly from Claim 1, which should be allowed as just explained. Therefore, Applicants respectfully request that the anticipation of Claims 1-6, 9, and 10 under 35 U.S.C. §102(b) be withdrawn.

Turning to the obviousness rejection of Claims 7 and 8, Applicants respectfully submit that Wagle and Palfreyman, neither individually nor in any combination, support a *prima facie* case of obviousness of the invention recited in Claim 1. This is so because, even when combined, these references do not teach or suggest all the claimed features. Claims 7 and 8 depend from Claim 1.

The outstanding Office Action acknowledges that Wagle fails to teach and disclose a thermosetting resin. Palfreyman, being cited for disclosing a thermosetting resin, does not remedy the above-noted failure of Wagle to teach or disclose a single-block drum comprising a stiffener in the form of a composite assembly comprising fibers and a polymer matrix mounted only on the downstream end of the drum.

Therefore, Wagle and Palfreyman, neither individually nor in any combination, make obvious the invention recited in Claim 1. Claims 7 and 8 should be allowed, among other reasons, as depending either directly or indirectly from Claim 1, which should be allowed as just explained. For the foregoing remarks, Applicants respectfully request withdrawal of the rejection of Claims 7 and 8 under 35 U.S.C. § 103(a).

Finally, Applicants have submitted new Claims 11-20, which find non-limiting support on the subject matter originally disclosed as follows: (1) as to Claims 11-13, on page 9, lines 16-24 of Applicants' specification; and (2) as to Claims 14 and 15, on page 8, lines 14-15. Non-limiting support for the new Claims 16-20 is self evident from the originally filed claims. Therefore, new Claims 11-20 are not believed to raise a question of new matter.³ Because Claims 11-15 incorporate by reference all of the features of Claim 1, at least in view of the above-presented remarks, Applicants respectfully submit that new Claims 11-15 should be allowed over Wagle and Palfreyman.

New Claim 16 recites a drum, comprising, among other features, means for damping deformations of the drum effected by stresses generated during operation of the aircraft engine, the means being disposed in the downstream end of the drum and comprising fibers and a polymer matrix.

Applicants respectfully submit that under the provisions of 35 U.S.C. §112, sixth paragraph⁴ and the examining guidelines clearly outlined in the MPEP §§ 2181-2183, Claim 16 is not anticipated nor made obvious by Wagle and Palfreyman, individually or in any combination, because (1) the rotor disclosed by Wagle is not the same as the disclosed drums comprising the recited means for damping; (2) no structural components in the tubomachine

³ See MPEP 2163.06 stating that "information contained in any one of the specification, claims or drawings of the application as filed may be added to any other part of the application without introducing new matter."

⁴ "The broadest reasonable interpretation that an examiner may give means-plus-function language is that statutorily mandated in paragraph six. Accordingly, the PTO may not disregard the structure disclosed in the specification corresponding to such language when rendering a patentability determination." MPEP § 2181, citing *In re Donaldson Co.*, 16 F.3d 1189, 29 USPQ2d 1845 (Fed. Cir. 1994).

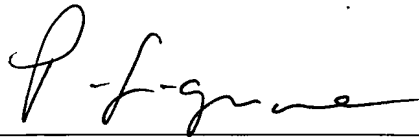
rotor resulting from that combination of references perform an identical function substantially the same way to produce substantially the same results as the disclosed structural features corresponding to the means for damping deformations of the drum of the present invention; (3) those of ordinary skill in the art would not recognize the interchangeability of the elements of Wagle and Palfreyman to the ones disclosed in Applicants' specification; (4) the differences between the elements in Wagle and Palfreyman and the elements disclosed in Applicants' specification are substantial; or (5) the elements in Wagle and Palfreyman are not structural equivalents of the elements disclosed in Applicants' specification.⁵ New Claims 17-20 depend from new Claim 16. At least for that reason, Applicants respectfully submit that new Claims 16-20 patently distinguish over Wagle and Palfreyman.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-20 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicants' undersigned representatives at the below listed telephone number.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Philippe J.C. Signore, Ph.D.
Attorney of Record
Registration No. 43,922
Mardson Q. McQuay
Registration No. 52,020

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 06/04)

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⁵ See generally MPEP §§ 2181-2183.